"Pribyl, Richard CTR OASN (I&E) BRAC PMO West" <richard.pribyl.ctr@navy.mil>
06/16/2008 05:36 PM

To "Quang Than" <QThan@dtsc.ca.gov>, Richard Muza/R9/USEPA/US@EPA, <jbroderick@waterboards.ca.gov>
cc "Arnold, Content P CIV NAVFAC SW" <content.arnold@navy.mil>, "Theroux, Debra M CIV OASN (I&E) BRAC PMO West" <debra.theroux@navy.mil>
bcc
Subject Former MCAS El Toro PRL Group IV RTCs - revised

Good afternoon team,

After discussions with DTSC last week, the Navy slightly revised the response to DTSC's first comment, reaching agreement on the content of the response. Based on the Navy's understanding of the discussions, the Navy is proceeding with the production of the Final Group IV reports.

In summary: changes were made (removing references to the 1996 PAH anthropogenic background study) in Sections 4.2 and 5; the reference page for PRL 46; Tables 2, 3, and 4 (all from the PRL 46 summary report); and the general Group IV PRL summary table (Table 2) pertaining to PRL 46. No changes were made to the NFI recommendations for these locations.

Attached are the revised RTC's and changed pages, to facilitate your review and support preparation of your concurrence letters (as appropriate). You will receive your hard copies of the Final Group IV Report, under official correspondence, before the end of June.

Please accept my appreciation for your communication and cooperation in achieving resolution on these PRL locations. If you have any questions regarding the Navy's responses, please do not hesitate to contact me.

Respectfully,

Richard J. Pribyl
Project Manager
Marine Corps Air Station El Toro
Sites 2, 3, 5, 17 and Basewide Investigations

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-----Original Message-----
From: Pribyl, Richard CTR OASN (I&E) BRAC PMO West
Sent: Monday, June 09, 2008 3:30 PM
To: 'Quang Than'; 'Muza.Richard@epamail.epa.gov'; 'jbroderick@waterboards.ca.gov'
Cc: Arnold, Content P CIV NAVFAC SW; Theroux, Debra M CIV OASN (I&E) BRAC PMO West
Subject: Former MCAS El Toro PRL Group IV RTCs

Good morning team (and welcome back Quang),

Attached please find the Navy's responses to DTSC's comments on the Group IV PRL Report. USEPA and the RWQCB did not have any comments on this document.

Based on the comments received, the Navy is proposing some minor revisions to the Group IV report, but has preserved the no further investigation recommendations for the PRLs in this report. The revised pages are also attached to this email for your consideration.

Due to the very limited number of comments on this document, a prompt reply is appreciated so that we may move to close out Group IV.

If you have any questions regarding the Navy's responses, please do not hesitate to contact me.

Respectfully,

Richard J. Pribyl
Project Manager
Marine Corps Air Station El Toro
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DTSC_RTCs_68sr_dft_grpIV_wd04.pdf


68sr_final_grpIV_replacement pages.pdf

Document Title:

Draft, Summary Report for Group IV Potential Release Locations, Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California, March 2008.

Reviewer: Mr. Anantaramam Peddada, *Hazardous Substances Scientist , California Department of Toxic Substances Control, Office of Military Facilities, Southern California Operations Branch, Letter dated 30 April 2008.*

Comment No.	Section/Page No.	Comment	Response
Comments			
1.		A cursory review of the PAH Reference-Level study, we find that there were a large number of non-detect samples for PAH in the investigation, indicating that anthropogenic PAH is not prevalent at El Toro. The report concludes (Section 4-1) "The calculated reference levels do not support the hypothesis that surface soils at MCAS El Toro have anthropogenic PAHs at or above the residential soil PRGs" DTSC is of the opinion that the reference levels are inappropriate for the current assessment of PRL 46.	The PAH Reference-Level study indicated that anthropogenic levels of PAHs, at or above the residential soil PRGs, are not prevalent at El Toro. As the cited reference level study for PAHs only provides complimentary information in the current assessment, the Navy will remove the references from the report. Multiple lines of evidence that consider the site history and the results of multiple investigations collectively support the recommendation for no further investigation at PRL 46. Section 5 of the Summary Report presents the basis for this recommendation.
2.		The Navy should calculate potency equivalent factors (PEFs) for PAH following Table 8 of the document "Technical Support Document for Describing Available Cancer Potency Factors" OEHHA 2002 available on the Web at: http://www.oehha.org/air/hot_spots/pdf/TSD2002.pdf	The final report will include a benzo(a)pyrene equivalent calculation based on the PEFs provided in the updated Technical Support Document dated May 2005 (OEHHA 2005). The results of this calculation are provided as Table 4 in the Summary Report. This evaluation did not significantly affect the original risk screening analysis; therefore, the no further investigation recommendation for PRL 46 remains valid.

References:

Bechtel National, Inc. (BNI). 1996. *Final Report, Anthropogenic PAH Reference-Level Study, MCAS El Toro, California.* San Diego, California. July.

Office of Environmental Health Hazard Assessment. 2005. *Technical Support Document for Describing Available Cancer Potency Factors.* http://www.oehha.org/air/hot_spots/pdf/May2005Hotspots.pdf. May.

4.2 RESULTS EVALUATION AND RISK SCREENING

None of the additional soil samples collected in the vicinity of location HA5 contained PAH concentrations exceeding their residential PRGs. These results indicate that the benzo(a)pyrene reported at location HA5 in 2003 was highly localized and was not indicative of a significant release. In addition, an evaluation of the soil sample results point out the high metal concentrations reported in the drain samples were not replicated in the soil and indicate that a significant release to the environment has not occurred.

Risk screening was performed to evaluate risks associated with potential exposures to detected analytes in the soil at PRL 46. The methodology for risk screening is presented in Section 3.3 of the main text of the Summary Report, and results are presented in Table 3. As part of the risk estimation, the benzo(a)pyrene equivalent concentration was calculated for the samples collected at PRL 46, using the potency equivalency factors provided in the updated Technical Support Document dated May 2005 (OEHHA 2005). This benzo(a)pyrene equivalent concentration was then used to estimate the carcinogenic risk at each of these locations due to PAHs. These calculations are presented in Table 4.

The cumulative (including results from the 2003 and 2005 investigations) maximum carcinogenic risk due to potential exposure to maximum detected concentrations of constituents of potential concern (COPCs) (detected analytes) at PRL 46 is 7.8E-05, which is less than the background risk of 1.1E-04, and is within the EPA-established risk management range of 10^{-6} to 10^{-4}. The maximum exposure point concentration (EPC) for arsenic (4.7 mg/kg) reported in the surface soil sample at location HA1 during the 2003 investigation accounts for nearly 98 percent of the cancer risk. However, this maximum arsenic EPC is less than the former MCAS El Toro background value of 6.86 mg/kg (BNI 1996). The cumulative maximum noncancer hazard associated with potential exposure to maximum detected concentrations of COPCs, expressed as the hazard index (HI), is 2.3, which is less than the background HI of 2.5. The maximum exposure point concentrations for iron (21,500 mg/kg) and vanadium (47.6 mg/kg) reported in the surface soil sample at location HA2 during the 2003 investigation accounts for nearly 40 percent and 27 percent of the noncancer HI, respectively. However, these maximum iron and vanadium concentrations are both less than their respective residential PRG values and the vanadium concentration is less than the Station background value of 71.8 mg/kg.

5. Conclusions and Recommendations

The primary objective of investigations conducted at PRL 46 was to assess whether a release of hazardous substances or pollutants into the environment has occurred. A review of available records, visual site inspections, and sampling activities were conducted for this assessment. One soil sample collected in 2003 contained benzo(a)pyrene, a PAH, in excess of its residential PRG. Subsequent samples were collected in 2005 to confirm this result and delineate the extent of the PAHs. The reported concentrations of PAHs in all subsequent samples were less than their respective residential PRGs, and are not indicative of a significant release. The cumulative cancer risk for PRL 46 is less than the Station background risk, and is within the EPA established risk management decision range of 10^{-6} to 10^{-4}. Additionally, the noncancer hazard at this PRL is less than the background noncancer hazard. Based on these findings, the impacted soil is assessed not to pose a risk to human health or groundwater, and therefore no further investigation is recommended for PRL 46.

6. References

Aerial Survey, OHM/SWDIV, 1997.

Bechtel National, Inc. (BNI). 1996. *Final Technical Memorandum, Background and Reference Levels, Remedial Investigations, Marine Corps Air Station El Toro, California.* San Diego, CA: NAVFAC EFD SOUTHWEST.

Borehole Location Survey, Calvada. 2003.

Environmental Protection Agency (EPA), United States. 2004a. *EPA Region 9 PRGs [Preliminary Remediation Goals] Tables.* San Francisco, CA. October.

———. 2004b. *SW-846 On-Line, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.*
http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm. Office of Solid Waste.

Office of Environmental Health Hazard Assessment. 2005. *Technical Support Document for Describing Available Cancer Potency Factors.*
http://www.oehha.org/air/hot_spots/pdf/May2005Hotspots.pdf. May.

Phillips National, Inc. (PNI). 1992. *Closure Report Tank #46, Marine Corps Air Station El Toro, California.* January.

Naval Facilities Engineering Command Southwest (NAVFAC SW). 2001. *Summary Report, Former Silver Recovery Unit (SRU) Number 3A, Building 46, Marine Corps Air Station El Toro, CA.* May.

———. 2003. *Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* San Diego, CA. September.

Table 2: Analytical Results Summary - PRL 46

Analyte	MCAS El Toro Background Value (95th quantile)[a]	Residential Soil PRG[b]	Sample Location	PRL46-HA1	PRL46-HA2	PRL46-HA3	PRL46-HA4	PRL06-HA5	PRL46- HA6	PRL46-HA7	PRL46-HA7	PRL46-HA8
			Sample Depth	1.0-2.0 feet bgs	1.5-2.5 feet bgs	1.0-2.5 feet bgs	1.5-2.5 feet bgs	1.0-2.0 feet bgs	4 feet bgs	0.5 feet bgs	4 feet bgs	0.5 feet bgs
			EPA ID	LJ103	LJ102	LJ099	LJ101	LJ100	LJ541	LJ542	LJ543	LJ544
Volatile Organic Compounds (µg/kg)												
4-Methyl-2-pentanone	--	5.3E+06		54 UJ	58 UJ	55 UJ	49 UJ	0.7 J	NA	NA	NA	NA
Total Xylenes	--	2.7E+05		16 U	17 U	17 U	15 U	0.8 J	NA	NA	NA	NA
Polynuclear Aromatic Hydrocarbons (µg/kg)												
Anthracene	--	2.2E+07		32 U	28 U	28 U	26 U	39	28 U	29 U	29 U	26 U
Benzo(a)anthracene	--	6.2E+02		32 UJ	28 UJ	28 UJ	26 UJ	70 J	28 U	29 U	29 U	26 U
Benzo(a)pyrene	--	6.2E+01		32 U	28 U	28 U	26 U	72	28 U	29 U	29 U	26 U
Benzo(b)fluoranthene	--	6.2E+02		32 U	28 U	28 U	26 U	78	28 U	29 U	29 U	2 J
Benzo(g,h,i)perylene	--	--		32 U	28 U	28 U	26 U	36	28 U	29 U	29 U	26 U
Benzo(k)fluoranthene[c]	--	3.8E+02		32 U	28 U	28 U	26 U	59	28 U	29 U	29 U	3 J
Chrysene[c]	--	3.8E+03		32 UJ	28 UJ	28 UJ	26 UJ	86 J	28 U	29 U	29 U	4 J
Dibenz(a,h)anthracene	--	6.2E+01		32 U	28 U	28 U	26 U	15 J	28 U	29 U	29 U	26 U
Fluoranthene	--	2.3E+06		32 U	28 U	28 U	26 U	190	28 U	29 U	29 U	1 J
Indeno(1,2,3-cd)pyrene	--	6.2E+02		32 U	28 U	28 U	26 U	32	28 U	29 U	29 U	26 U
Phenanthrene	--	--		32 UJ	28 UJ	28 UJ	26 UJ	160 J	28 U	29 U	29 U	26 U
Pyrene	--	2.3E+06		32 U	28 U	28 U	26 U	150	28 U	29 U	29 U	2 J
Metals (mg/kg)												
Aluminum	14,800	7.6E+04		*15,200*	*18,200*	12,400	8,430	*18,800*	NA	NA	NA	NA
Antimony	3.06	3.1E+01		15 U	13 U	13 U	13 U	15 U	NA	NA	NA	NA
Arsenic	6.86	6.2E-02		**4.7 J**	**4.5 J**	**2.8**	**2.1 J**	**3.6 J**	NA	NA	NA	NA
Barium	173	5.4E+03		141	*175*	131	86.9	165	NA	NA	NA	NA
Beryllium	0.669	1.5E+02		1 U	0.9 U	0.89 U	0.84 U	1 U	NA	NA	NA	NA
Cadmium	2.35	3.7E+01		0.43 UJ	0.47 UJ	0.42 UJ	0.34 UJ	0.61 UJ	NA	NA	NA	NA
Calcium	46,000	--		4,490	6,340	4,800	2,610	6,280	NA	NA	NA	NA
Chromium	26.9	2.1E+02		13.3	16	14.8	7.9	15.9	NA	NA	NA	NA
Cobalt	6.98	9.0E+02		*7.2*	*9.5*	6.3	4.3	*8.6*	NA	NA	NA	NA
Copper	10.5	3.1E+03		8.5	10.3	7	3.7	10.2	NA	NA	NA	NA
Iron	18,400	2.3E+04		18,000 J	*21,500 J*	15,000 J	10,800 J	*21,200 J*	NA	NA	NA	NA
Lead[c]	15.1	1.5E+02		5.1	4.5	4.3 J	2.4	6.9	NA	NA	NA	NA
Magnesium	8,370	--		6,860 J	*8,550 J*	5,720 J	3,570 J	*8,590 J*	NA	NA	NA	NA
Manganese	291	1.8E+03		276	*319*	244	194	*319*	NA	NA	NA	NA
Mercury	0.22	2.3E+01		0.0043	0.016	0.009	0.033	0.015	NA	NA	NA	NA
Nickel	15.3	1.6E+03		8.1	9.9	8.6	4.7	12.1	NA	NA	NA	NA
Potassium	4,890	--		4,080 J	*5,010 J*	3,380 J	2,390 J	*5,090 J*	NA	NA	NA	NA
Selenium	0.32	3.9E+02		1.5 U	1.3 U	1.3 U	0.54 UJ	1.5 U	NA	NA	NA	NA
Silver	0.539	3.9E+02		2.5 U	2.2 U	0.27 UJ	2.1 U	2.6 U	NA	NA	NA	NA
Sodium	405	--		510 U	226 UJ	440 U	46.5 UJ	63.4 UJ	NA	NA	NA	NA
Thallium	0.42	5.2E+00		2 U	1.8 U	1.8 U	1.7 U	2.1 U	NA	NA	NA	NA
Vanadium	71.8	7.8E+01		39.2	47.6	33.9	23.9	47.3	NA	NA	NA	NA
Zinc	77.9	2.3E+04		51.9	58.3	45.3	29	58.3	NA	NA	NA	NA

Notes

Concentrations in **bold font** indicate values greater than the residential soil PRGs, but less than the former MCAS El Toro background values.

Concentrations in *italicized and underline font* indicate values greater than the former MCAS El Toro background values, but less than the residential soil PRGs

[a] Source: BNI 1996

[b] Analytical results were compared to EPA Region 9 PRGs (2004a), with the exception of benzo(k)fluoranthene, chrysene, and lead (see note c)

[c] Analytical results for benzo(k)fluoranthene, chrysene, and lead were compared to California-modified PRGs (2004a) because they are significantly more protective than the corresponding EPA Region 9 PRGs

Locations HA6, HA7, and HA8 were sampled during this investigation (2005), and all other locations were sampled during the 2003 investigation

-- = value does not exist

µg/kg= micrograms per kilogram

bgs = below ground surface

Table 3: Risk Screening Results - PRL 46

COPC	Maximum EPC	MCAS El Toro Background Value (95th quantile)[a]	Carcinogenic PRG[b]	Noncarcinogenic PRG[b]	Risk Corresponding to Maximum EPC				Risk Corresponding to Bac		
					Carcinogenic		Noncarcinogenic		Carcinogenic		N
					Excess Cancer Risk[c]	Percent Contribution to Cancer Risk[d]	HI[e]	Percent Contribtion to Noncancer Risk[d]	Excess Cancer Risk[f]	Percent Contribution to Cancer Risk[g]	Hi[h]
Volatile Organic Compounds (µg/kg)											
4-Methyl-2-pentanone	0.7	--	--	5.3E+06	--	--	1.3E-07	0.0%	--	--	--
Total Xylenes	0.8	--	--	2.7E+05	--	--	3.0E-06	0.0%	--	--	--
Polynuclear Aromatic Hydrocarbons (µg/kg)											
Anthracene	39	--	--	2.2E+04	--	--	1.8E-03	0.1%	--	--	--
Benzo(a)anthracene	70	--	6.2E+02	--	1.1E-07	0%	--	--	--	--	--
Benzo(a)pyrene	72	--	6.2E+01	--	1.2E-06	1%	--	--	--	--	--
Benzo(b)fluoranthene	78	--	6.2E+02	--	1.3E-07	0%	--	--	--	--	--
Benzo(g,h,i)perylene	36	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene[i]	59	--	3.8E+02	--	1.6E-07	0%	--	--	--	--	--
Chrysene[i]	86	--	3.8E+03	--	2.3E-08	0%	--	--	--	--	--
Dibenz(a,h)anthracene	15	--	6.2E+01	--	2.4E-07	0%	--	--	--	--	--
Fluoranthene	190	--	--	2.3E+06	--	--	8.3E-05	0.0%	--	--	--
Indeno(1,2,3-cd)pyrene	32	--	6.2E+02	--	5.1E-08	0%	--	--	--	--	--
Phenanthrene	160	--	--	--	--	--	--	--	--	--	--
Pyrene	150	--	--	2.3E+06	--	--	6.5E-05	0.0%	--	--	--
Metals (mg/kg)											
Aluminum	18,800	14,800	--	7.6E+04	--	--	2.5E-01	10.9%	--	--	1.9E-0
Arsenic[i]	4.7	6.86	6.2E-02	2.2E+01	7.6E-05	98%	2.2E-01	9.6%	1.1E-04	99.9%	3.2E-0
Barium	175	173	--	5.4E+03	--	--	3.3E-02	1.4%	--	--	3.2E-0
Calcium	6,340	46,000	--	--	--	--	--	--	--	--	--
Chromium	16	26.9	2.1E+02	--	7.6E-08	0%	--	--	1.3E-07	0.1%	--
Cobalt	9.5	6.98	9.0E+02	1.4E+03	1.1E-08	0%	6.9E-03	0.3%	7.7E-09	0.0%	5.1E-0
Copper	10.3	10.5	--	3.1E+03	--	--	3.3E-03	0.1%	--	--	3.4E-0
Iron	21,500	18,400	--	2.3E+04	--	--	9.2E-01	40.3%	--	--	7.8E-0
Lead[i]	6.9	15.1	--	1.5E+02	--	--	4.6E-02	2.0%	--	--	1.0E-0
Magnesium	8,590	8,370	--	--	--	--	--	--	--	--	--
Manganese	319	291	--	1.8E+03	--	--	1.8E-01	8.0%	--	--	1.7E-0
Mercury	0.033	0.22	--	2.3E+01	--	--	1.4E-03	0.1%	--	--	9.4E-0
Nickel	12.1	15.3	--	1.6E+03	--	--	7.7E-03	0.3%	--	--	9.8E-0
Potassium	5,090	4,890	--	--	--	--	--	--	--	--	--
Vanadium	47.6	71.8	--	7.8E+01	--	--	6.1E-01	26.8%	--	--	9.2E-0
Zinc	58.3	77.9	--	2.3E+04	--	--	2.5E-03	0.1%	--	--	3.3E-0
				Cumulative Maximum Risk	**7.8E-05**		**2.3E+00**		**1.1E-04**		**2.5E+0**

Notes:

[a] Source: BNI 1996

[b] United States EPA Region 9 PRGs (2004a)

[c] Excess cancer risk = 1E-06 x (Maximum EPC/Carcinogenic PRG)

[d] With respect to cumulative excess cancer risk or hazard index

[e] HI = Maximum EPC / Noncarcinogenic PRG

[f] Excess cancer risk = 1E-06 x (MCAS El Toro Background Concentration/Carcinogenic PRG)

[g] With respect to cumulative excess cancer risk or hazard index

[h] HI = MCAS El Toro Background Concentration / Noncarcinogenic PRG

[i] = Analytical results for benzo(k)fluoranthene, chrysene, and lead were compared to California-modified PRGs (2004a) because they are significantly more protective than the corresponding EPA Region 9 PRGs

Table 4: Benzo(a)Pyrene Equivalent Calculations - PRL 46

Sample Location	Sample Depth	EPA ID	Benzo(a)pyrene (µg/kg)	Benzo(a)pyrene B(a)P Equivalent	Benzo(a)anthracene (µg/kg)	Benzo(a)anthracene B(a)P Equivalent	Benzo(b)fluoranthene (µg/kg)	Benzo(b)fluoranthene B(a)P Equivalent	Benzo(k)fluoranthene (µg/kg)	Benzo(k)fluoranthene B(a)P Equivalent	Chrysene (µg/kg)	Chrysene B(a)P Equivalent
PEF				1		0.1		0.1		0.1		0.01
PRL 46-HA1	1-2 feet bgs	LJ103	*16*	16	*16*	1.6	*16*	1.6	*16*	1.6	*16*	0.16
PRL 46-HA2	1.5-2.5 feet bgs	LJ102	*14*	14	*14*	1.4	*14*	1.4	*14*	1.4	*14*	0.14
PRL 46-HA3	1-2.5 feet bgs	LJ099	*14*	14	*14*	1.4	*14*	1.4	*14*	1.4	*14*	0.14
PRL 46-HA4	1.5-2.5 feet bgs	LJ101	*13*	13	*13*	1.3	*13*	1.3	*13*	1.3	*13*	0.13
PRL 46-HA5	1-2 feet bgs	LJ100	72	72	70	7	78	7.8	59	5.9	86	0.86
PRL 46-HA6	4 feet bgs	LJ541	*14*	14	*14*	1.4	*14*	1.4	*14*	1.4	*14*	0.14
PRL 46-HA7	0.5 feet bgs	LJ542	*14.5*	14.5	*14.5*	1.45	*14.5*	1.45	*14.5*	1.45	*14.5*	0.145
PRL 46-HA7	4 feet bgs	LJ543	*14.5*	14.5	*14.5*	1.45	*14.5*	1.45	*14.5*	1.45	*14.5*	0.145
PRL 46-HA8	0.5 feet bgs	LJ544	*13*	13	*13*	1.3	2	0.2	3	0.3	4	0.04
PRL 46-HA8	4 feet bgs	LJ556	1	1	1	0.1	2	0.2	0.7	0.07	3	0.03

Notes:

Concentrations in italic denote values which were less than the reporting limits; and for the B(a)P calculations their value was divided by 2.

PEFs are based on the updated Technical Support Document dated May 2005 (OEHHA 2005)

The PEF for dibenz(a,h)anthracene was calculated using the ratio of inhalation unit risk for dibenz(a,h)anthracene and benzo(a)pyrene as per the 2005 OEHHA document.

µg/kg =micrograms per kilogram

B(a)P= Benzo(a)pyrene

bgs = below ground surface

EPA = Environmental Protection Agency

ID = identification

MCAS = Marine Corps Air Station

PEF = potency equivalency factor

PRL = potential release location

Table 2: Evaluation Summary - Group IV PRLs

PRL	Background	Issues and Concerns	Sampling and Analysis Summary	Investigation Results	Recommendations
46	PRL 46 is associated with Building 46 located in the northwest quadrant of former MCAS El Toro, California. The building was identified as Administrative Offices in the 1948 and 1949 Station lists; a Photo Lab in the 1950 list; Administrative Offices in the 1954 list; a Training Building (Clerical School) in the 1958 list; and a Printing Plant in the 1973 list. The last known description was a Reproduction Building in the 1997 list. In a letter dated 29 March 2002, the DTSC recommended further investigation at the site to evaluate the potential for releases of VOCs, SVOCs, metals, cyanide, and pH, at points where piping penetrates the slab and where sub-slab plumbing bends sharply. Soil sampling was conducted for PRL 46 in 2003 at five borehole locations at depths ranging from 2 feet to 2.5 feet bgs. The samples were analyzed for VOCs, SVOCs, PAHs, cyanide, pH, and metals. Benzo(a)pyrene was reported at a concentration of 72 µg/kg in the soil sample from Borehole HA5, collected at a depth of 1 feet to 2 feet bgs adjacent to the floor drain in the restroom in the southwest corner of the building, which is greater than its residential PRG of 62 µg/kg.	In a letter dated 11 April 2003, the EPA recommended providing further rationale for "no further action" at PRL 46 due to the presence of benzo(a)pyrene at a concentration of 72 µg/kg, which was above the residential soil PRG of 62 µg/kg, and other constituents at HA5. In a letter dated 11 April 2003, the DTSC recommended additional assessment in the vicinity of HA5 to determine the extent of PAH contamination. The DTSC also recommended that results of the drain samples should be considered in the strategy for the additional assessment to help identify target compounds.	**Soil Sampling.** Additional sampling of PRL 46 was conducted in May 2005. One soil sample was collected at location HA6, near the floor drain located in the restroom to assess the vertical extent of benzo(a)pyrene at HA5 where a previous detection above the residential PRG had been reported. The sample at HA6 was collected at a depth of approximately 4 feet bgs, and was analyzed for PAHs. Two additional soil samples (HA7 and HA8) were collected to assess the extent of PAHs in the vicinity of HA5 at depths of 0.5 feet bgs (shallow soil sample) and 4 feet bgs (deep soil sample). **Drain Sampling.** Two solid samples of drainpipe contents (DS1 and DS2) and one liquid sample (DS1) were also collected and analyzed for metals.	**Soil Sampling.** None of the soil samples collected in the vicinity of location HA5 contained PAH concentrations exceeding their residential PRGs. These results indicate that the benzo(a)pyrene detected at location HA5 in 2003 is not indicative of a significant release. The cumulative cancer risk at PRL 46 is less than the Station background risk. Additionally, the noncancer hazard at this PRL is less than the background noncancer hazard. **Drain Sampling.** The suite of constituents analyzed in soil were inclusive of the constituents in the drain. The results were compared to State and Federal waste characterization thresholds, and should be taken into consideration during the removal of the drain residuals. It is recommended that the drain material be removed and disposed in accordance with State and Federal regulations under DON guidance as part of housekeeping.	No Further Investigation
133	PRL 133 is associated with Building 133, situated in the northeast quadrant of former MCAS El Toro, California. Building 133 was built as a Photographic Lab in 1943. The building was listed as a Photographic Lab in the 1948, 1949, 1950, and 1954 Station lists. The facility description was a Tactical Photo Lab in the 1958 list; a Location Exchange in the 1973 list; and an Office/Training Facility in the 1997 list, which was the last known description. Investigations were initiated at Building 133 in April 2000 and March 2001 that included an inspection of the exterior of the building, a geophysical survey to locate sewer lines, potholing/trenching to expose and inspect sewer lines, and collection of a soil sample for analyses (NAVFAC SW 2002).	In a letter dated 8 April 2002, the DTSC requested additional investigation to evaluate the potential for releases of VOCs, metals, acids (measured by pH), cyanide, and SVOCs. Points to be investigated included where plumbing currently (and formerly) penetrates the slab; below the hand sink discharge to the storm drain; beneath the storm drain; and at sharp bends in sub-slab plumbing. The former use of the building as a photograph processing laboratory may have involved the use and discharge of photographic process chemicals and dissolved metals (i.e., silver from the SRU). Other processes conducted in the building may have resulted in discharges of paint, solvents, paint removers, rust removers, and reproduction chemicals. Further investigation was recommended.	**Soil Sampling.** Soil sampling to evaluate PRL 133 was conducted in January and February 2003. Soil samples were collected at two locations at PRL 133 at depths ranging from 1-foot to 3.5 feet bgs, and analyzed for VOCs, SVOCs, metals, cyanide, and pH. **Drain Sampling.** Two liquid drain samples (DS1 and DS2) were also collected and analyzed for metals.	**Soil Sampling.** The reported concentrations of all COPCs were less than their residential PRGs and former MCAS El Toro background values, and are not indicative of a release. The resulting cumulative cancer risk at PRL 133 is less than the Station background risk, and the noncancer hazard at this PRL is less than the background noncancer hazard. **Drain Sampling.** The suite of constituents analyzed in soil were inclusive of the constituents in the drain. The results were compared to State and Federal waste characterization thresholds, and should be taken into consideration during the removal of the drain residuals. It is recommended that the drain material be removed and disposed in accordance with State and Federal regulations under DON guidance as part of housekeeping.	No Further Investigation
312	PRL 312 is associated with Building 312, located in the southwest quadrant of former MCAS El Toro, California. The building was listed as a Photo Laboratory in the 1948, 1949, 1950, and 1954 Station lists; and as the Station Photo Laboratory in the 1958 list. The facility description was a Photographic Building in the 1973 and 1997 Station lists and this was the last known description. A Technical Memorandum was prepared by the DON (NAVFAC SW 1998) that presented a sampling strategy to ascertain whether a release of chemicals of potential concern associated with photographic processing activities at the site had occurred. The chemicals of concern identified in the Technical Memorandum included silver, iron, copper, hydroquinone, glycols, ethylene diethyl, organic nitrogen compounds, ammonia, and cyanides. However, there are no records that an investigation took place.	Chemicals of concern from photographic processing activities may have been released to the environment via the floor drains and sewer lines. Further investigation was recommended.	**Soil Sampling.** Sampling to evaluate PRL 312 was conducted in June 2005. Nine soil samples were collected at locations HA1 through HA9, to assess for releases of chemicals of concern associated with photographic processes via the floor drains and industrial (acid) waste line connections. The samples were collected 1 foot below the sewer inverts and analyzed for the following photographic operations-related substances: silver, copper, hydroquinone, and cyanides. These analytes were selected from the list presented in the 1998 Technical Memorandum (NAVFAC SW 1998) as those that would most likely indicate if a release has occurred (i.e., those that have lower PRGs would likely have been released in larger quantities, and would have been less likely to breakdown or degrade over time).	**Soil Sampling.** The reported concentrations of all COPCs were less than their residential PRGs, and are not indicative of a significant release. Additionally, the noncancer hazard at this PRL is less than the target HI of 1.	No Further Investigation
439	PRL 439 is associated with Building 439, situated in the northwest quadrant of former MCAS El Toro, California. Building 439 was listed as a Station Hospital in the 1958 Station list and as a Dispensary and Dental Clinic in the 1973 list. The last known description was Dental Clinic in the 1997 list.	An x-ray room and film developing laboratory were identified during the 2003 EBS. SRU 01, a former silver recovery unit (SRU), was in operation at Building 439 until 1999. The presence of a film processing laboratory may have led to the release of photographic process chemicals and dissolved metals (i.e., silver from the SRU). Further investigation was recommended. The use of the facility as a hospital and dental clinic may have involved the use of thermometers and dental amalgam that may have resulted in discharges of mercury, silver, and other chemicals via sink or floor drains. The facility also contained an analytical laboratory and a sink with a biohazardous waste trap. Further investigation was recommended to assess whether hazardous substances were released into the environment via the building's plumbing system.	**Soil Sampling.** Sampling to evaluate PRL 439 was conducted in January and February 2003. Six soil samples (including a duplicate) were collected from four locations at depths ranging from 1-foot to 5.5 feet bgs. The soil samples were analyzed for VOCs, SVOCs, metals, cyanide, and pH. **Drain Sampling.** Solid (DS3, DS4, and DS6) and liquid samples (DS1, DS2, DS5, and DS7) were also collected from seven sink p-traps at locations DS1 through DS7 and analyzed for metals.	**Soil Sampling.** The reported concentrations of all COPCs were less than their residential PRGs (except arsenic), and are not indicative of a significant release. Arsenic was detected at a maximum concentration of 4.0 mg/kg, which is greater than the California-modified residential PRG value of 0.06 mg/kg but less than the former MCAS El Toro background value of 6.86 mg/kg. The resulting cumulative cancer risk and the noncancer hazard at PRL 439 is less than the background risk and background noncancer hazard, respectively. **Drain Sampling.** The suite of constituents analyzed in soil were inclusive of the constituents in the drain. The results were compared to State and Federal waste characterization thresholds, and should be taken into consideration during the removal of the drain residuals. It is recommended that the p-trap material be removed and disposed in accordance with State and Federal regulations under DON guidance as part of housekeeping.	No Further Investigation
457	PRL 457 is associated with Building 457, located in the southeast quadrant of former MCAS El Toro, California. The building was listed as an Administrative Office in the 1973 Station list and as a Barber Shop in the 1997 list. The last known description was a Barber Shop; a Branch Dental Clinic; an Enlisted Mess Hall; and Group Headquarters. An X-ray developing laboratory and dental exam rooms were observed during the visual site inspection conducted in support of the 2003 EBS (NAVFAC SW 2003).	Due to the past use of the facility as a dental/medical clinic, X-ray/photographic development chemicals, dental amalgam, or mercury from thermometers may have been released to the sanitary sewer and the environment via the sink drains and the SRU. Further evaluation was recommended to assess whether releases of pollutants into the environment have occurred as a result of past operations at this facility.	**Soil Sampling.** Sampling to evaluate PRL 457 was conducted in May 2005. Two samples were collected at a depth of 3 feet bgs and analyzed for copper, mercury, silver, and tin.	**Soil Sampling.** The reported concentrations of all COPCs were less than their residential PRGs and former MCAS El Toro background values, and are not indicative of a release. Additionally, the noncancer hazard at this PRL is less than the target HI of 1.	No Further Investigation

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PRL	Background	Issues and Concerns	Sampling and Analysis Summary	Investigation Results	Recommendations
634	PRL 634 is associated with Building 634, situated in the northeast quadrant of former MCAS El Toro, California. The building was identified as a Maintenance Hanger; an Airframes Shop; and an Avionics Shop in 1973.	Floor drains and service sinks were identified throughout the facility, as well as floor drains in the Cleaning and Plating Shop, and a SRU in the X-Ray Processing and Control Room, which could have served as routes of release of hazardous chemicals used in the shops. Further investigation was recommended.	**Soil Sampling.** Sampling to evaluate PRL 634 was conducted in January and March 2003. Seven soil samples were collected from seven borehole locations at depths ranging from 0.5-foot to 2 feet bgs, and analyzed for VOCs, SVOCs, TPH, and metals.	**Soil Sampling.** The reported concentrations of all COPCs are within the former MCAS El Toro background range and were less than their residential PRGs (except arsenic and iron), and are not indicative of a release. Arsenic was detected at a concentration of 7.8 mg/kg at location HA1, which is greater than its California-modified residential PRG value of 0.06 mg/kg and former MCAS El Toro statistically derived background value of 6.86 mg/kg (which is based on the 95th quantile). However, it is within the range of arsenic concentrations used to derive the background (BNI 1996) and is less than the maximum reported concentration of 8.5 mg/kg. This data suggests that this value is within the expected range of arsenic concentrations at the Station. Iron was detected at a concentration of 32,100 mg/kg at location HA1, which is greater than the former MCAS El Toro background concentration of 18,400 mg/kg and the PRG concentration of 23,463 mg/kg. However, iron is not identified as a COPC at this location and all other soil samples collected at a similar depth were consistent with background concentrations. The soil sample from location HA1 was collected next to a cast iron sewer pipe and may have contained remnants of the pipe material. Magnesium and potassium were detected at concentrations greater than the former MCAS El Toro background values at location HA1; no PRGs exist for these metals. Therefore, the results from HA1 and in particular iron are assessed to be an anomaly. The other samples collected at this site were consistent with background indicating these concentrations are localized at HA1 and are not indicative of a release. Therefore, the reported concentrations of all COPCs at PRL 634 are not indicative of a release. The resulting cumulative cancer risk and the noncancer hazard at PRL 634 are consistent with the background cancer risk and background noncancer hazard, respectively.	No Further Investigation
			Drain Sampling. A sediment sample (DS1) was also collected and analyzed for metals.	**Drain Sampling.** The suite of constituents analyzed in soil were inclusive of the constituents in the drain. The results were compared to State and Federal waste characterization thresholds, and should be taken into consideration during the removal of the drain residuals. It is recommended that the sink drain material be removed and disposed in accordance with State and Federal regulations under DON guidance as part of housekeeping.	